

WORLD TAEKWONDO

Technology Manual for WT Recognised Competitions



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1. INTRODUCTION

1.1 THIS DOCUMENT

This document delivers all the necessary explanations and technological requirements to prepare the field of play for World Taekwondo recognized competitions (G1, G2, G4).

The organising committee should follow this technical documentation for smooth preparation and safe operations.

1.2 OBJECTIVE

The technology manual will guide the local organizing committee to deliver the requirements for the setup of the WT Recognised competitions.

The purpose of the technology manual is as follows:

- Explain and guide the LOC (Local organizing committee) on technology standards required for World Taekwondo Recognised events.
- Provide the equipment list which the LOC has to deliver to run a smooth and safe competition.
- Show in detail the setup expected from World Taekwondo for recognised tournaments.

1.3 MAIN AUDIENCE

The main audience of this document is:

- WT Recognised competition Local organising committee.
- Technical providers

1.4 GLOSSARY

WT: World Taekwondo

OVR: On venue results

PSS: Protector scoring system

IVR: Instant video replay

UPS: Uninterruptible power supply

LOC: Local organising committee

RTDS: Real time display service

GMS: Global membership system

IT: Information technology







FOP: Field of play

LED: Light emitting diode

2. TECHNOLOGY RESOURCES AND SERVICES FOR WT COMPETITIONS:

2.1 ON VENUE RESULT (OVR)

WT-COMPLIANT OVR COMPANIES

     	CONTACT INFO OF WT COMPLIANT OVR COMPANIES (WT PROMOTED & RECOGNIZED EVENTS)																
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OVR	On Venue Result
Duties	Manage and process the competition (Head of team meeting, Entries, Weigh-in, Competition operation and Results)
Selection process	OVR homologated by World Taekwondo http://www.worldtaekwondo.org/wtf-partners/wt-compliant-ovr-companies/
Equipment	Main system and back-up, printer, network, RTDS
Results	Provide daily results and full competition report
Printable outputs	P01 TA SHEET P04 NUMBER OF ENTRIES BY NOC P05 ENTRIES BY NOC P06 ENTRIES BY WEIGHT CATEGORY P08 WEIGH IN P11 DRAW SHEET P13 MEDALLISTS P14 MEDALIST BY WEIGHT CATEGORY

2.2 PROTECTOR AND SCORING SYSTEM (PSS)



PSS	Protective and scoring system
Duties	Provide electronic scoring and protectors (Trunk & head protector + scoreboard).
Selection process	2 companies are recognised by World Taekwondo: KPNP or Daedo
Equipment	Electronic trunk protectors Electronic head protectors Transmitters and receivers Joysticks Electronic foot protectors (Athletes). 1 laptop per area + 1 back up per 5 court Hit level table: Daedo and KPNP have different hit level.
Specifications	The PSS software for both companies must be the last version up to date. The last update guaranty to follow the WT rules and interpretation.
Recommendation	WT highly recommend having a PSS technician who has the correct knowledge about PSS system and also the wireless environment to prevent any disconnection issue.



kpnp.sales@daum.net



marketing@daedo.com

2.3 INSTANT VIDEO REPLAY (IVR)



IVR	Instant video replay
Duties	Provide multiangle video system for review jury
Selection process	IVR system must be approved by WT following the Instant video replay minimum requirements: Contact World Taekwondo information technology: it@worldtaekwondo.org
Equipment	Video system including at least 2 cameras per court
Specifications	During the review the video replay must be displayed on the scoreboard monitor or on LED wall. All the videos must be available for TD and CSB
Recommendation	WT highly recommend having an IVR technician who has the correct knowledge about IVR system

3. FIELD OF PLAY (FOP) SHAPE

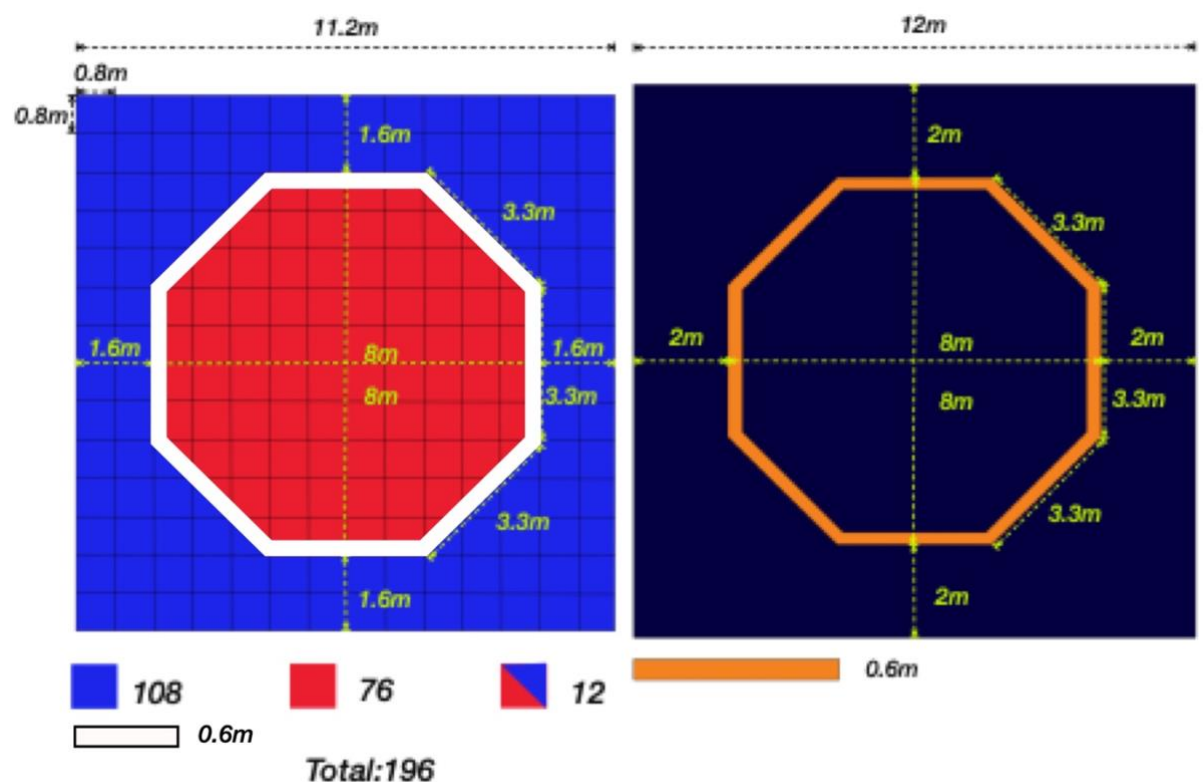
3.1 MAT SIZE AND SPECIFICATIONS

A – Mat properties:

The mat size and properties should follow the WT Rules.

The mat should be selected following the list of the recognized companies¹.

For WT promoted competitions octagonal mat is mandatory.



B – Mat size and distances:

The size of the octagon is 8m by 8m with a boundary line of 60cm.

The safety area must be minimum 2m out of the boundary line.

The total size of the mat varies depending on the length and the width of the FOP.

¹ Refer to the WT recognized companies

4. COMPETITION FUNCTIONAL AREAS

4.1 WARMING UP AREA



Warming up area	
Description	The warming up area is the location where the athletes and coaches train and prepare before going onto the field of play.
Size	The size should cover 6 mats minimum for 10 competition areas
Equipment	Mats, RTDS (Tv Monitor, laptop, Network, power).

4.2 INSPECTION DESK AND EQUIPMENT AREA



Inspection area	
Description	The inspection desk should be located between the warming up area and the call room.
Equipment	Table, Metal detector, RTDS (Tv Monitor, laptop, Network, power), plastic gloves, PSS sensing socks equipment for verification

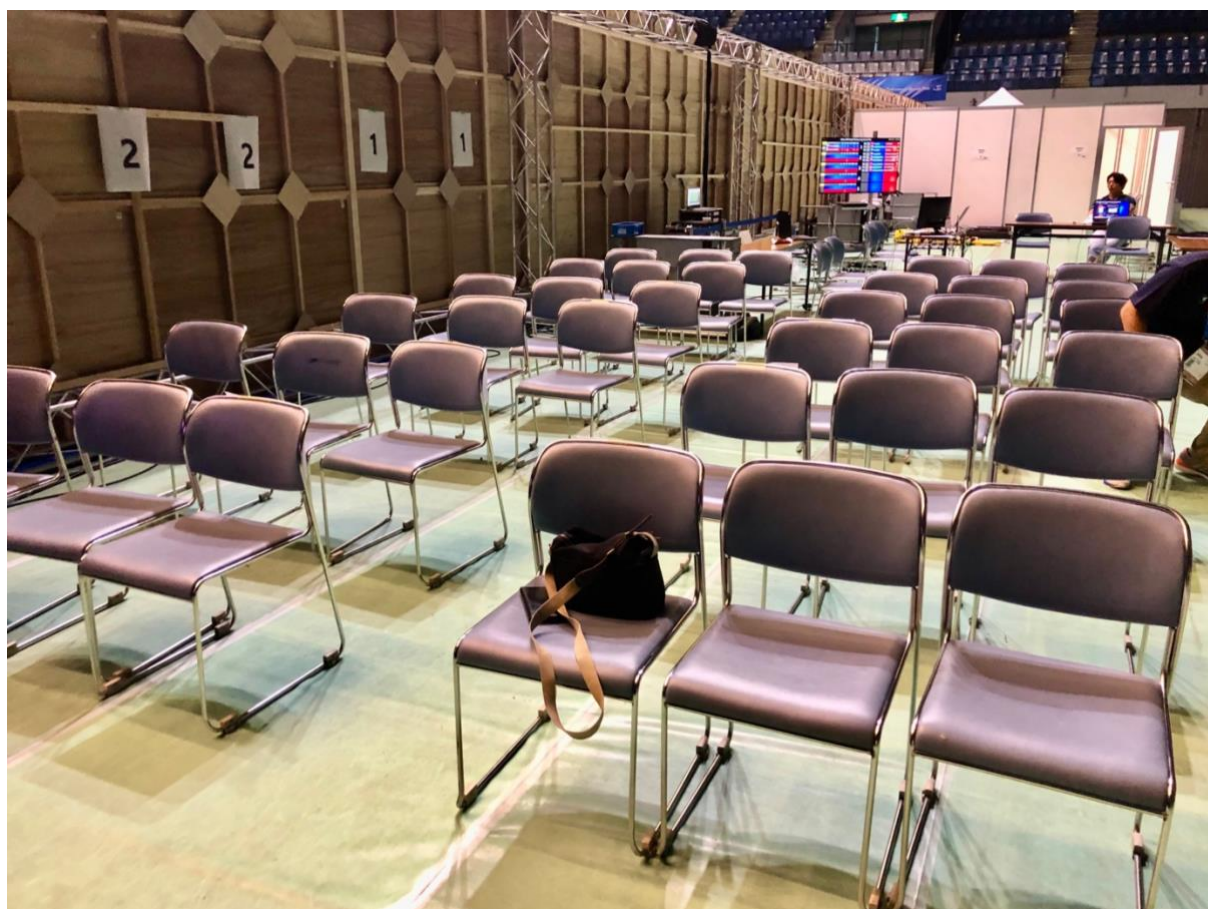


PSS socks check KPNP



PSS socks check Daedo

5.3 CALL ROOM AND PSS REGISTRATION



A - Description:

Call Room and PSS Test	
Description	<p>After the inspection area if it's not done before the games a PSS technician is responsible to set the equipment before entering in the Field of play.</p> <p>The call room is the place after inspection where the athletes, coaches and team doctors are waiting to enter on the field of play.</p>
Size	15 m2 square (PSS testing) - 6 seats per mats (Call room)
Equipment	Chairs, RTDS, Table for PSS Laptop with receiver and transmitters. PSS Laptop for Pre-Registration

5. TECHNOLOGY AND SET UP

5.1 MAT SCOREBOARD

A – TV monitors specifications:

2 scoreboards minimum are required per mats.

The scoreboard should face the centre referee and the other should face the technical table.

C – Connection between PSS and IVR system to the TV monitors:

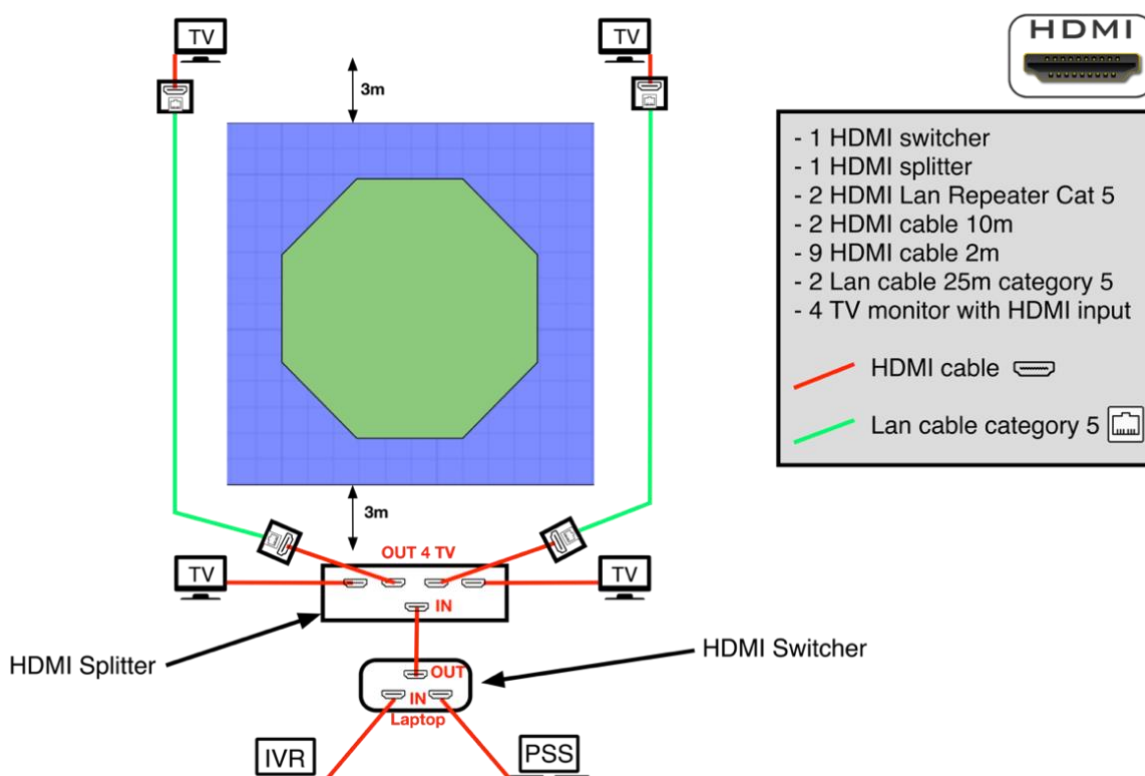
The scoring display comes from the PSS laptop and the IVR system using a video switcher in between to show the scoreboard or the video replay.

The video output can use the following connections:

- HDMI

➤ HDMI output:

The HDMI input is usually available for all the TV monitors. The HDMI output allows high-definition resolution from 720p until 1080p. 1920*1080 also named as Full HD is the resolution recommended for scoring display.

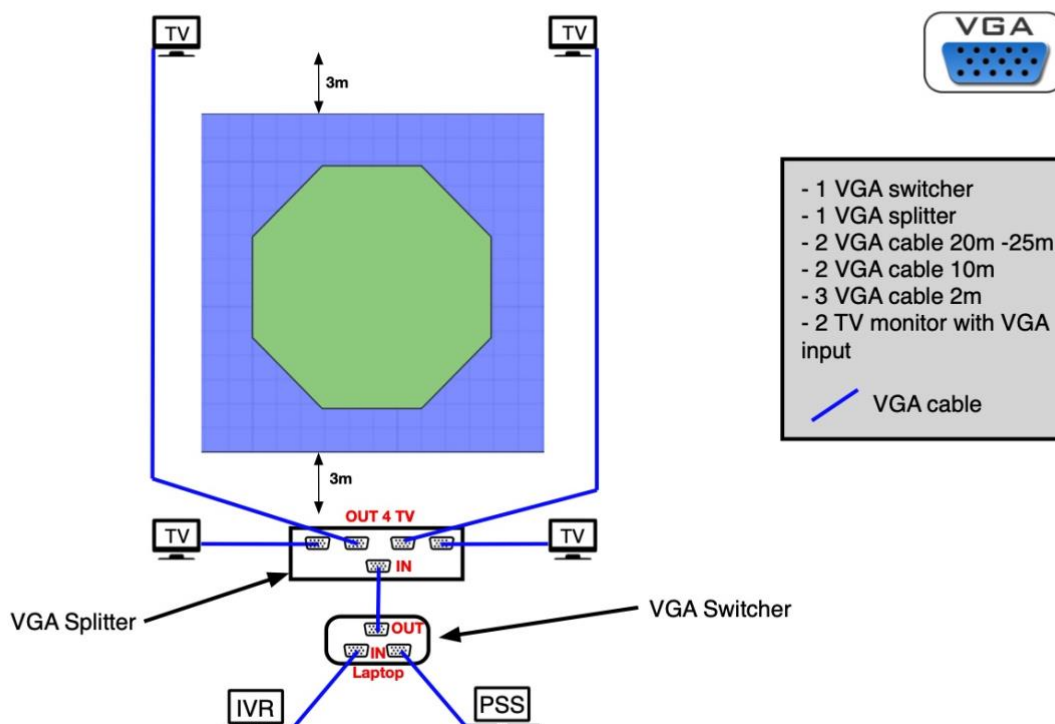


HDMI Lan repeater: This hardware will extend the HDMI signal. The HDMI signal through HDMI cable is limited to 20m. With the HDMI Lan repeaters, the distance can be increased up to 60m (Depending on the repeater properties). The device must be a quality product to guaranty a good video signal. Both input and output will be HDMI interconnected by a Lan cable in between (RJ45).



➤ VGA output:

- The VGA input is usually available for all the old TV monitors. The solution is more simple to implement but is limited for the cables length to 25m.



5.2 NETWORK AND INTERNET

A - Competition network:

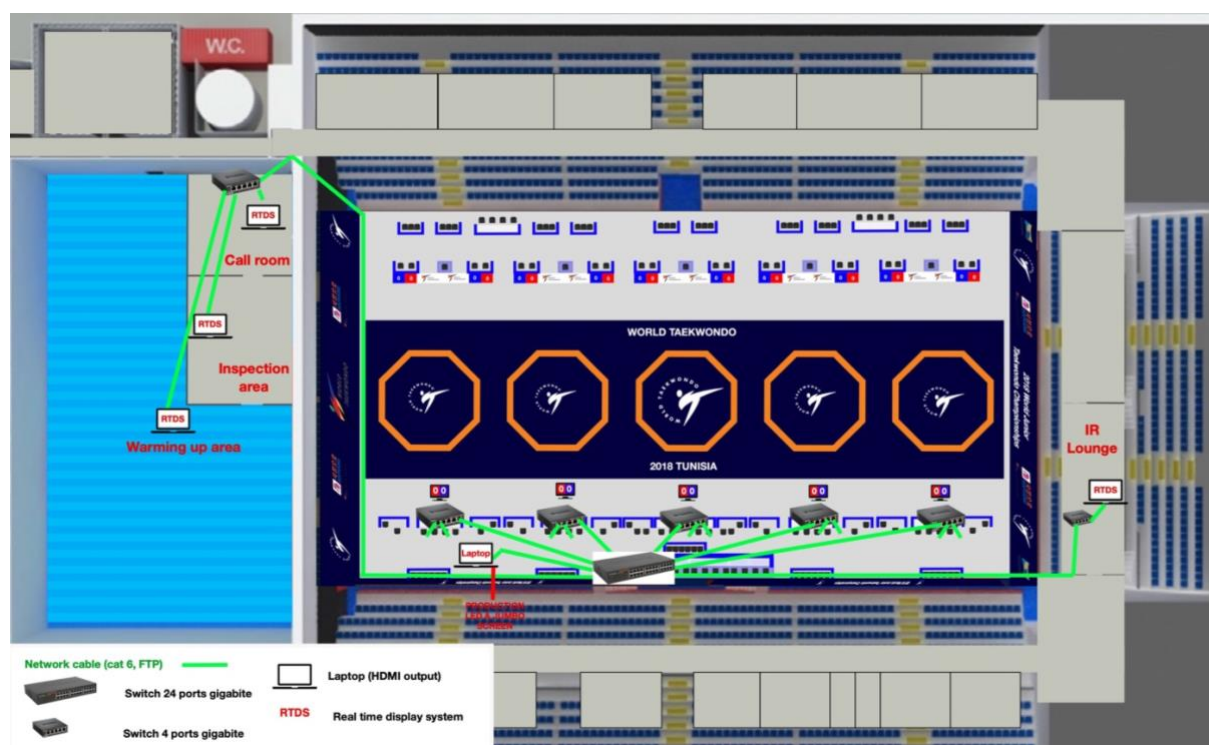
The network is at the center of the technology communication and links all the different technology partners. The network quality is very important to ensure a good and stable communication between the OVR, TVG, PSS and IVR.

The necessary items to ensure a good and safe quality network are the following:

- 2 Switches Gigabyte 24 ports (1 main and 1 back-up)
- 1 Switch Gigabyte 5 ports per TA table + 1 switch Gigabyte 5 port for the call room
- 4 Lan cables category 6 of 2m per TA tables
- 200m to 400m Lan cable coil category 6 to link the Operation table, the TA tables and the functional areas with RTDS

The network settings should be as follows:

- Internal network without router
- Fix IP address assigned to each computer connected
- Internet line 30Mb/s



B – Internet

Internet should be provided in different areas:

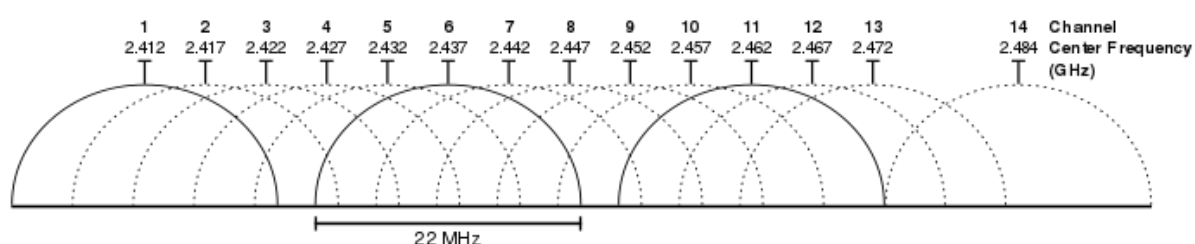
- Local network -> 50Mbps/s symmetric connected to the competition network.
- Media and press room -> 50Mbps/s symmetric by Lan cable or WIFI
- Competition field of play Staff and official 50Mbps/s using Lan cable or WIFI.

The WIFI password shouldn't be communicated. Only the network technician, the competition manager and WT staff should have the key.

C – WIFI:

Any WIFI 2.4Ghz on the field of play should respect some requirements.

The PSS system is using wireless communication and some WIFI channels should be dedicated to the PSS.



The PSS uses the channels up to channel number 6 to communicate between their transmitters and receivers. The network technician should block any WIFI router using these channels. The internet using WIFI will be only the channels 1 to 6.

5.3 POWER AND ELECTRICITY

A – Field of play power supply

The power on the FOP should come from an industrial power distribution board. From this board, all the lines should be distributed to the main location using industrial sockets and cables.

From this socket, the power will be distributed to each areas and systems.

- All the main systems, OVR, PSS and IVR will be connected on UPS.
- In case of broadcasters, they will use their own power generated from the HB truck.
- The LED and jumbo screen should have their own power distribution board.



Industrial power distribution board



Uninterruptible power supply

B – UPS Uninterruptible power supply (Optional – Recommended).

The Uninterruptible power supply will provide power if the power board or any plugs is disconnected.

It's a temporary power back-up in order to allow enough time to reinstall the power.

The capacity of the UPS should be over 1000Watts.

C – Power distribution:

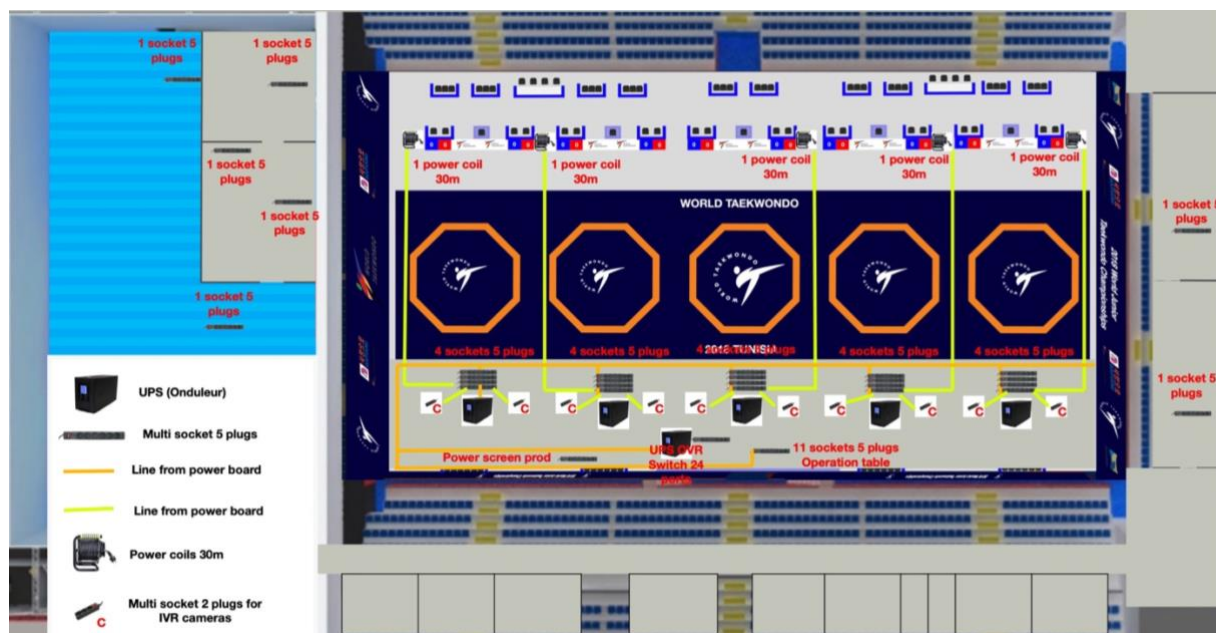
200A minimum should be distributed to the field of play (Excluding light, LED, Jumbo screen and sound).

The power should be distributed to the following providers:

- OVR: Operation table, RTDS Call room, RTDS Warming up area, RTDS Inspection desk, RTDS Referee chairman and CSB, RTDS Media and other optional RTDS.
- PSS: Each technical assistant table + Storage to charge the transmitters.
- Instant video replay: Each technical assistant table and cameras location.
- TVG: The TVG is located near the OVR on the Operation table.

D – Equipment list:

- 1 UPS per TA Table (Optional – Recommended)
- 4 multi sockets 5 plugs per TA table
- 1 UPS for the OVR at the operation table (Optional – Recommended)
- 6 multi sockets 5 plugs for OVR and TVG at the operation table
- 1 multi sockets 5 plugs per table at the Operation table
- 2 plugs for each camera location (Long cable over 10m + multi socket 2 plugs) -> 1 coil 30m + 1 multi socket 5 plugs per mat is recommended to bring the power to the camera 3.
- 2 multi sockets for each functional area²



² Refer to part 5.1, 5.2, 5.3 and 5.5

5.4 FOP PUBLIC SCOREBOARD

A - Jumbo screen and LED wall specification:

1 Jumbo screen minimum to show the RTDS is recommended.

The size of the screen is the following:

- Length: Multiple of 2.4m
- Height: Multiple of 1.3m
- Format: 16:9
- Pitch: P5 – P12



6. CONCLUSION

Any questions and advices please IT@worldtaekwondo.org